Local Service Organization Service Manual

BE INSPIRED

A50/1168

SIEMENS COMMUNICATIONS LIMITED

Our innovation shapes the future

Table of Content

Chapter 1

Cellular Communication

Coverage Concept.

The cellular systems is made up of numerous transmitting and receiving sites, whose individual coverage areas partially overlap. The concept of frequency re-use, same frequency is used by several sites, allows a high traffic density in a wide area. Due to the limited transmission range of the terminals, cellular systems are based on a large number of base stations on the infrastructure side, scattered over the area to cover, with each covering a fairly small geographical zone called cell. Cells are often represented by hexagons (see figure 1.1.).

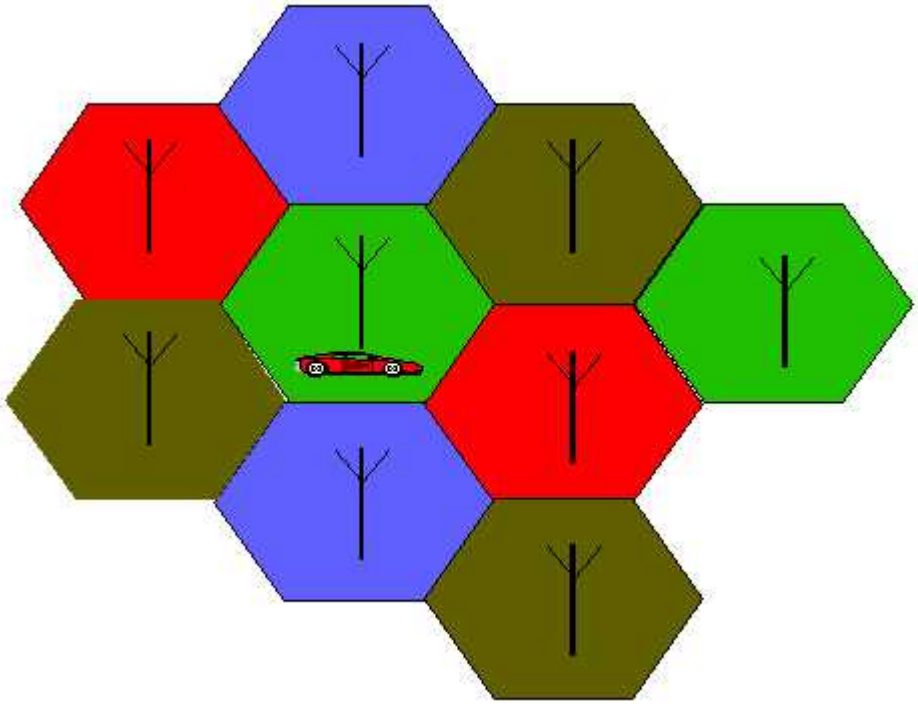


FIGURE 1.1 CELLULAR COVERAGE REPRESENTATION.

GSM Network Architecture.

GSM network can be broadly divided into three broad parts, namely:
1. Mobile Station(MS) carried by the subscriber,
2. Base Station Sub-system(BSS) which controls the radio link with the mobile station.
3. Mobile Switching Center(MSC) which performs the switching of calls between the mobile users, and between mobile and fixed network users.

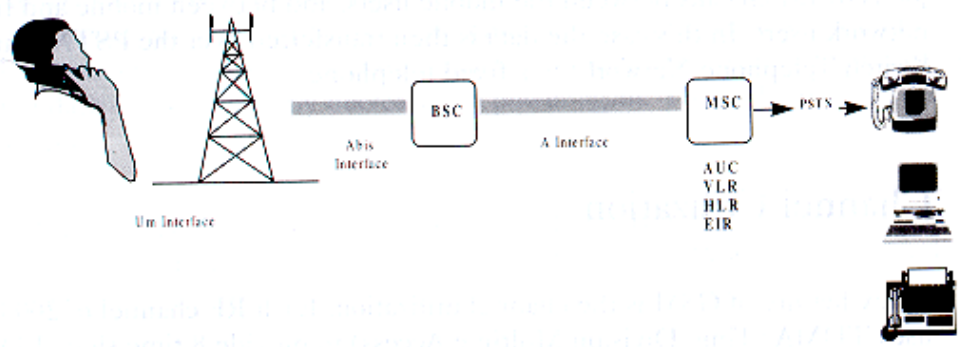


FIGURE 1.2 GSM ARCHITECTURE

Each mobile station is given a unique identity. As soon as the mobile phone is turned on, it registers with the network and is authenticated; as such the network could always find the mobile phone.
Larger amount of data is being exchanged to and from the following functional blocks in the MSC:

Visitor Location Register, VLR
Stores information about mobile subscribers that enter it coverage area, which is associated with the geographical area where the mobile is currently roaming. When there is an incoming call for the mobile, the HLR is interrogated about the present address of the VLR.

Home Location Register, HLR
A database that contains all data concerning the subscription of the mobile subscriber, i.e. their access capabilities, subscribed services, and supplementary services. It also contains information about the VLR that is handling the mobile station currently. When the mobile changes location, the HLR is updated accordingly. It also provides the MSC with information about the MSC area where the mobile is actually located to allow incoming calls to be routed immediately to the called party.

Authentication Center, AUC

Stored information that is necessary to protect communication through the air interface against any intrusions. The legitimacy of the subscriber is established through authentication and ciphering, which protects the user information against unwanted disclosure.

Equipment Identity Register, EIR
An option the network operator can use to enforce security. With this feature the network can identify defective or stolen mobile that may not be used in the network.

Subscriber Identity Module (SIM)

SIM is a smart card, which has a computer, and memory chip that is permanently installed in the mobile equipment. It comes in either the size of a credit card or smaller version known as the plug-in SIM.

SIM card using 5V technology is not supported.

The subscriber information, which includes a unique number called the International Mobile Subscriber Identity (IMSI) is stored in the SIM card. SIM card identifies the subscriber to the network.

To protect the SIM card from improper use, a security feature, a four digits personal identification number (PIN), is built in. The PIN is stored in the SIM card and can be changed by the subscriber. PIN2 is required for additional functions available with a special SIM card (Consult the operator for more information about the PIN 2).

A code (PUK) is provided for unlocking the SIM card if the SIM card is blocked

To deactivated SIM locked, due to wrong PIN entry,
Get the unblock code from the operator.

.

SIM Application Toolkit

This is a new GSM feature that has been integrated into the GSM standards in Release 96, with further enhancements added as part of the Release 97 feature set. This feature came about because of a desire by Network Operators to offer differentiated services, without the need for the Mobile Manufacturers having to build different variant for different customers. The unique service offered by the Operator is placed as an application on the SIM and that could work on any mobile that supports the Toolkit feature.

There is a distinct set of commands between the mobile and the SIM specifically for the Toolkit that allows the SIM Toolkit and the mobile to communicate independently of the GSM communication between the SIM and the mobile. Henceforth, the SIM Application Toolkit and GSM functionality on the SIM are separated logically. The Toolkit can interact directly with the mobile itself and adding itself to the mobile menu.

Currently, Toolkit application on the SIM and its “other half” communicate by using the Short Message Service(SMS). “Proactive SIM” is a mechanism whereby the SIM can initiate actions to be taken by the mobile. These actions include:

- Display text from the SIM on the Mobile display
- Send short message
- Set up a voice call to a number held by the SIM
- Set up a data call to a number and bearer capabilities held by the SIM
- Send a Supplementary Service (SS) control or Unstructured Supplementary Services Data (USSD) string
- Play a tone in the mobile’s ear piece or ringer
- Initiate a dialogue with the user
- Provide local information from the mobile to the SIM.
- Data download to the SIM from network
- Call control by the SIM.

SIM Applications Toolkit (SAT) allows the flexibility to update the SIM, to change the services and download new services over the air. In the SAT specification, the short message service is a key mechanism for personalizing the SIM in each user’s GSM phone. It is designed as a client-server application. A50 series supports SAT Class 3 specification.

When active, the name of the service may appear in the menu, and there will be sub-menu if more than one application is active. Figure 1.4 is the SAT icon.

FIGURE 1.4 SAT ICON

Extended GSM 900, E-GSM

This is a new standard that allows Network Operators to increase their capacity through an extended frequency. The frequency range of E-GSM is as follows:

- Mobile Transmit: 880,2 - 914,8 MHz
- Mobile Receive: 925,2 - 959,8 MHz

A50/1168 series is a GSM Phase 2 / Phase 2+ Dualband E-GSM / GSM 1800 mobile phone.

Wireless Application Protocol, WAP.

Wireless Application Protocol takes a client-server approach that uses the in-built micro-browser to make a request, in wireless markup language (WML), for information or service. The request is passed to a WAP Gateway, which then retrieves the information from a Internet server, in HTML format, and translate it into WML. The requested information is then sent to from the WAP Gateway to WAP client (mobile) using the available and most appropriate mobile network bearer services.

Wireless Protocol Stack.

Wireless Application Environment (WAE)
Wireless Session Protocol (WSP)
Wireless Transaction Protocol (WTP)
Wireless Transport Layer Security (WTLS)
Wireless Datagram Protocol (WDP)
Bearers e.g. Data, SMS, USSD

TABLE 1..1 WAP PROTOCOL STACK

1. Wireless Application Environment

   Defines the user interface on the phone. WAE contains the WML,WML script and the wireless telephony application (WTA).

2. Wireless Session Protocol

   Link the WAE to two session services – one connection oriented operating above the WTP and a connectionless service operating above WDP.

3. Wireless Transaction Protocol

   Runs on top of the datagram service and part of the standard suite of TCP/IP protocols, to provide a simplified protocol suitable for low bandwidth mobile station.

4. Wireless Transport Layer Security

   WTLS incorporates security features that are based upon the established Transport layer Security (TLS) protocol standard, that include data integrity checks, privacy on the WAP Gateway to client leg and authentication.

5. Wireless Datagram Protocol

   Allows WAP to be bearer independent by adapting the transport layer of the under-laying bearer. WDP presents a consistent data format to the higher layer on the WAP stack.

WAP Internet access via the A50 is possible with the inclusion of Wireless Application Protocol (WAP) browser 1.2.1.
Note: The Asian variant phone (1168) does not support WAP.

Chapter 2

Level 2 Service Guide

Introduction

The chapter is intended to help you carry out repair up to Level 2 on the A50 mobile phone.

General Information

A50/1168 is a dual band (GSM 900 and GSM 1800) Siemens GSM Smart handset.

Due to different requirements of the markets, the A50 has different variants, which broadly classified under International version and Asian version. Marketing name for international version is A50, whereas Asian version is 1168.

The A50 and 1168 share the same phone accessories.

Difference between A50 and 1168

The differences between the A50 and 1168 are the phone hardware code and the phone software.

1168 is a Asian variant of A50 phone for the China, Taiwan, Hong Kong, Singapore and Malaysia markets featuring support for English, Simplified Chinese and Traditional Chinese language.

The repair for international version A50 and the Asian variants 1168 are identical unless otherwise noted, therefore the description herein is confined to A50 only.

All repairs have to be carried out in an environment set up according to ESD regulations defined in international standards.

A50/1168 Technical Information

System	GSM Phase 2, Dual Band EGSM 900, Class 4(2 Watt) GSM 1800, Class 1(1 Watt)
Operating Voltage	3.6V
Size (LxWxH)	109 x 46 x 23 mm (L x W x H)
Volume	85 cm^3 including battery (approx)
Weight	97g including battery (approx)
Battery	650mAH Li-ion Battery (A50 Standard)
Standby time[1]	up to 250 hours (standard battery)
Talk time[1]	up to 300 minutes (standard battery)
Charging Time	< 2 hours for 100%
SIM support	Plug in card 1.8 V or 3V, SIM Application Tool Kit Class 3
Antenna	Integrated
Speech codec	Triple rate voice coder *Enhance Full Rate/Full Rate/Half Rate*
Display	5 lines, 64x101 pixels
Keypad	12 numeric keys (10 numeric, #, *) 2 function keys (Send, End-ON/OFF) 2 multifunctional softkey and 1 phone book key
Key Sound	Click/DTMF/None
Key Lock	Activation and Deactivation by #-key or Automatic
Dialing	Last 10 outgoing calls (Redial) Last 10 incoming with date/time stamp Last 10 missed calls with date/time stamp
Ringer	On/Beep/Off 16+4 individual melodies and 5 ringer volume settings
Speaker Volume	Adjustable in 4 levels during call via softkey
Silent Alert	Built-in vibrator
Phone Book	Storage depends on the SIM card capacity (up to 255)

[1] Actual time dependent on the network.

	Internal phonebook of 50 entries.
SMS Support	MT, MO, CB Predictive Text Input, Tegic T9.
Supplementary Services	Call Forwarding, Call Hold, Call Wait, Multiparty Conference, CLIP, CLIR, AoCC AoCI, FDN, LND USSD and SAT
Ciphering	A5/1 and A5/2 supported
PIN control	PIN 1 & 2 Code Control
Phone code	4 to 8 digit code
Network function	Automatic and manual network selection
Chipset	Infineon EGOLD+
WAP Browser	Version 1.2

Other Features

- Calling Faces & Calling Symbols
- Predefined EMS sounds & pictures
- Concatenated SMS
- Various animations (menu, welcome)
- Silent Alert
- Various user profiles
- Text modules
- Intelligent Typing (T9) + Libraries
- Chinese menu and input (xx88)
- Alarm / Date
- Date & Time Stamp
- 50 additional phone book entries in the phone
- Mobile Internet Access
- Grouping SMS

Accessories:

L36104-F3090-X903	Handsfree Loudspeaker S45/ME45/C45/M45
L36145-K1310-X187	Battery NiMh 550mAh
L36145-K1310-X196	Battery NIMH CHN
L36145-K1310-X215	Battery LI-ION
L36145-K1310-X216	Battery LI-ION CHN
L36146-A3043-D	Phone Adapter Cable S45/ME45/C45/M45
L36146-A3061-D	Y-Adapter
L36158-A58-C35	Mounting for Car Cradle S45/ME45/C45/M45
L36254-Z6-C95	Handsfree Microphone aktiv S45/ME45/C45/M45
L36280-Z4-C354	Plug-In Power Sup TAI
L36280-Z4-C355	Power Supply CHN
L36880-N4501-A101	Desk Top Charger S45, ME45, C45, M45
L36880-N4501-A102	Car-Cradle Standard S45, ME45, C45, M45
L36880-N4501-A103	Car-Cradle with Antenna Cab S45, ME45, C45, M45
L36880-N4501-A115	Soft Data Link 5.0 S45, ME45, C45, M45
L36880-N4501-A134	Car Data Adapter S45, ME45, C45, M45
L36880-N4501-A135	Push to Talk Key S45, ME45, C45, M45
L36880-N4501-A137	Multi Media Card 32 MB S45, ME45, C45, M45
L36880-N4501-A143	Desk Top Charger China S45/ME45/C45/M45
L36880-N4501-A144	Car-Cradle Standard China S45/ME45/C45/M45
L36880-N4501-A145	Data Cable China S45/ME45/C45/M45
L36880-N4501-A148	Data Cable S45/ME45/C45/M45/S25/C35/C35i/ M35/S35i/SL42/SL45
L36880-N4701-A100	Battery NiMH 550mAh
L36880-N4701-A101	Belt Clip
L36880-N4701-A112	Battery LI-Ion 600mAh
L36880-S4501-A300	E-Box Carkit Voice S45/ME45/C45/M45 german
L36880-S4501-A301	E-Box Carkit Voice S45/ME45/C45/M45 english
L36880-S4501-A302	E-Box Carkit Voice S45/ME45/C45/M45 french
L36880-S4501-A600	Phone Adapter Cable Voice S45/ME45/C45/M45
L36880-S4501-A700	Phone Adapter Cable GPS S45/ME45/C45/M45

For the updated list, please refer to the list in *e-Commerce from time to time*.
URL address: https://communication-market.siemens.de/so/welcome.lookup.asp

ClipIt Covers

Car kit Confort

Car Kit Upgrade

Headset PTT

Car Kit Portable

Car Kit GPService

Car Charger

Car Kit Professional Voice II

Retractable Headset

Travel Charger

Mobile Holder Antenna

Mobile Holder

Crash Sensor

PTT Key

Desktop Charger

Carry Set

ClipIt Covers

Leather Holster

Loop Case

Leather Case

NiMH/Li-ION Battery

External MP3 Player

Belt Case

Shoulder Bag

Neoprene Case

Home Station

A50 Mechanical Diagram

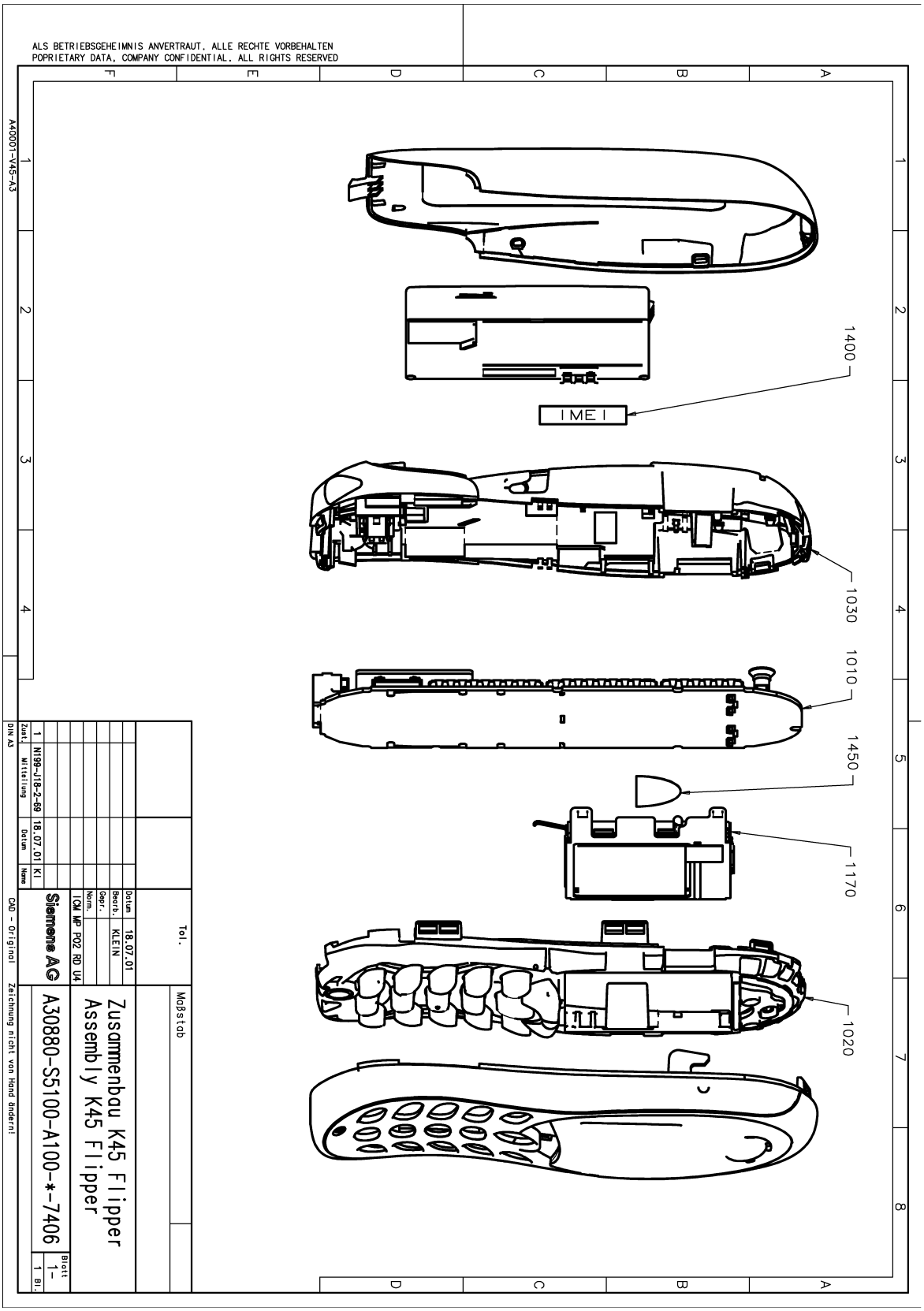


FIGURE 2.1 A50 MECHANICAL DIAGRAM.

Mechanical Concept

Please take note that the number(s) used here IS NOT the part number, DO NOT used it in your spare parts purchase order.

Always refer to the SERVICE PART PRICE LIST for your spare part order.

Note: All numbers refer to mechanical drawing in Figure 2.1.

The mechanical concept of the A50/1168 is similar in various points from other Siemens mobile telephones.

The first thing you will experience is how the housing is locked. In A50/1168 no screws are used to keep the housing closed. Also inside the telephone no screws are used anymore. To open the housing, which is kept closed by catches only, a special opening tool has been defined. Once the phone is open the catches will be damage and a new housing need to be used. *For details on disassembly tool please refer to Photo 2.5 in the Disassembly Section of this chapter*.

Inside, the A50/1168 consists of just one board (1010), which carries control part and RF section of the mobile.

The display module (1170) and the keypad module (1010) are connected to the board by the flexible cable which is inserted into a plug-in connector. In case the display or keypad is defective electrically or mechanically it can be exchanged very easily.

A50/1168 does have an external connector of a new type. Since S6 a so-called “Molex”-connector was used, which also offered the possibility to connect an external antenna to it. The new “Lumberg”-connector, which is used in A50/1168, does not feature such a connection, because the connector for external antenna is located at the back side of the upper end of the mobile, close to the internal antenna. As a consequence of this there is no need anymore for a RF cable mounted to the board or for a RF plug on it to connect this cable. This improves RF-properties of the mobile and lowers production costs.

To be able to do measurements on and software update of the telephone, an adapter cable between Molex and Lumberg connector will be available. *See photos in Additional Tools of Chapter 3*.

A50/1168 antenna is an integral part of the lower case shell (1030).

The A50/1168 is a dual-band mobile operating on GSM900 and GSM1800, the antenna is an integral part of the lower housing.

The keypad, the microphone and the loudspeaker are mounted into the upper case shell (1020). Make sure that the microphone and the earphone contact springs are not dirty or damaged during repair process.

Reference: E-Commerce

Swap Unit

L36880-S5110-X100	A50 Mobile Phone Swap

Spare Parts Level 1

L36158-A54-A452	Upper mounting frame A50 (Complete with ear piece, keypad and microphone)
L36158-A54-A448	Lower mounting frame A50
L36158-A54-C240	Vibra Clip
L36197-F5008-F290	Display Module Philips
L36197-F5008-F291	Display Module Epson
L36197-F5008-F292	Display Module Hyundai
L36453-Z5-C115	Vibra-Alert Unit

Spare Parts Level 2

L36880-Q5110-A10	RF Control Board A50

Spare Parts Level 2,5

L36158-A54-C211	Cardreader
L36158-A54-C215	Battery Connector
L36195-Z26-C629	ZIF Connector C35/C35i/S35i/M35i/C45
L36334-Z93-C261	Antenna Contact/Koax/BUC/STVS C25/S25/C45
L36334-Z93-C262	I/O Connector/STV C25/S25/C35/C35i/S35i/M35i/SL45/A35/S45/ ME45/A40/SL42/C45
L36840-L2055-D670	Display LED Amber S35i/S45/ME45/C45
L36840-L2056-D670	Keyboard LED Amber S35i/S45/ME45/C45

Repair

L36880-Q5110-A10	RF Control Board A50

Documentation and Software

L36008-H5110-A1--7619	User Guide UG1 A50 english
L36008-H5110-A2--19	User Guide UG2 A50 german
L36008-H5110-A3--7219	User Guide UG3 A50 italian

For the updated list, please refer to the list in *e-Commerce from time to time*.
URL address: https://communication-market.siemens.de/so/welcome.lookup.asp

Disassemble of the A50/1168

STEP 1:

Remove the battery cover by pushing in the direction as shown in PHOTO 2.0

PHOTO 2.0 DISASSEMBLE A50– STEP 1

STEP 2:

Remove the battery by releasing the catch and lifting the battery simultaneously as in Photo 2.1

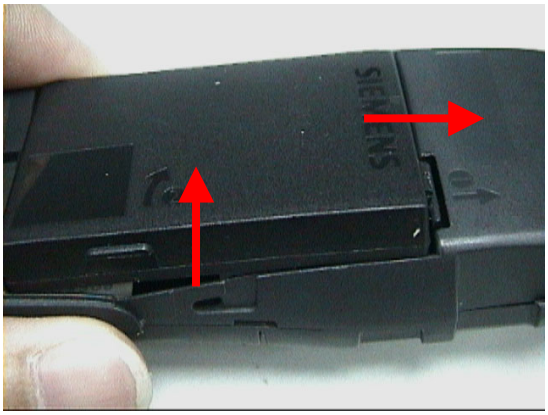


PHOTO 2.1 DISASSEMBLE A50– STEP 1

STEP 3:

Remove the front housing by pushing upwards to release the catch on both sides of the phone as illustrated in PHOTO 2.2, 2.3 & 2.4

PHOTO 2.2 DISASSEMBLE A50– STEP 3

PHOTO 2.3 DISASSEMBLE A50– STEP 3

PHOTO 2.4 DISASSEMBLE A50– STEP 3

STEP 4:

Separate the Upper and Lower internal housing using the opening tool as shown in PHOTO 2.5 & 2.6

PHOTO 2.5 DISASSEMBLE A50– STEP 4

PHOTO 2.6 DISASSEMBLE A50– STEP 4

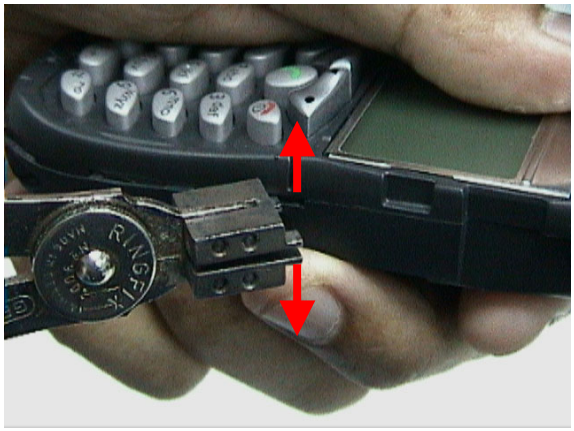


PHOTO 2.7DISASSEMBLE A50– STEP 4

PHOTO 2.8DISASSEMBLE A50– STEP 4

STEP 5:

Separate the Lower Internal housing, Upper Internal housing and the Control Board Assembly as shown in PHOTO 2.9

PHOTO 2.9DISASSEMBLE A50– STEP 5

STEP 6:

Separate the LCD and the Control Board Assembly by lifting the catches on the side, repeat the same process on the reverse side as shown in PHOTO 2.10 & 2.11

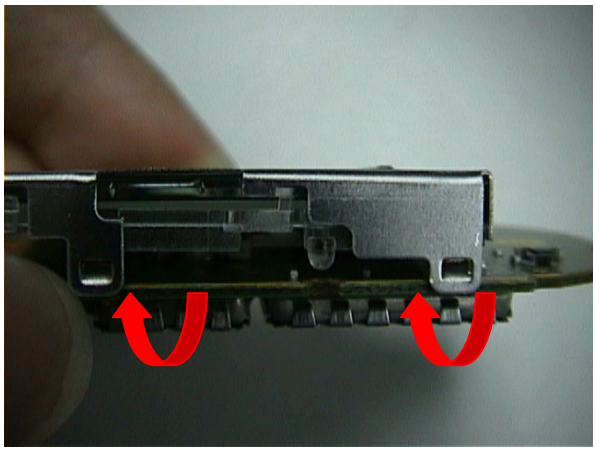


PHOTO 2.10DISASSEMBLE A50– STEP 6

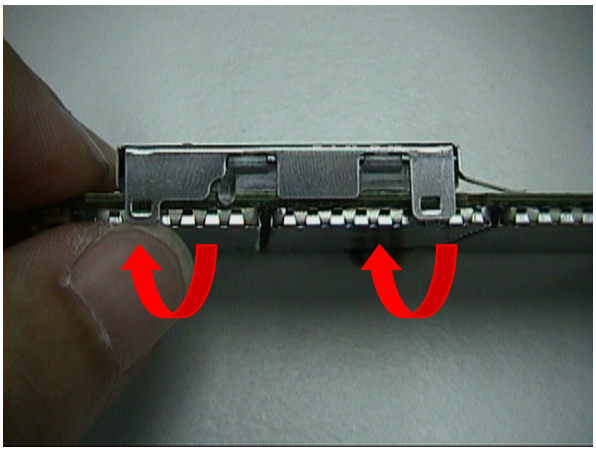


PHOTO 2.11DISASSEMBLE A50– STEP 6

STEP 7:

Carefully lift up the display connector locking part to 45° and pull the display module away from the connector to remove it as illustrated in PHOTO 2.12 & 2.13

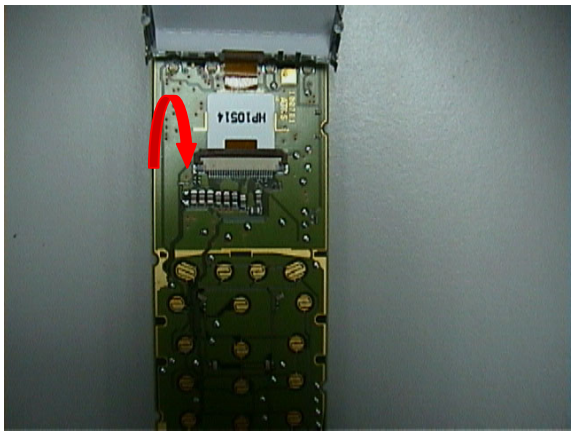


PHOTO 2.12DISASSEMBLE A50– STEP 6

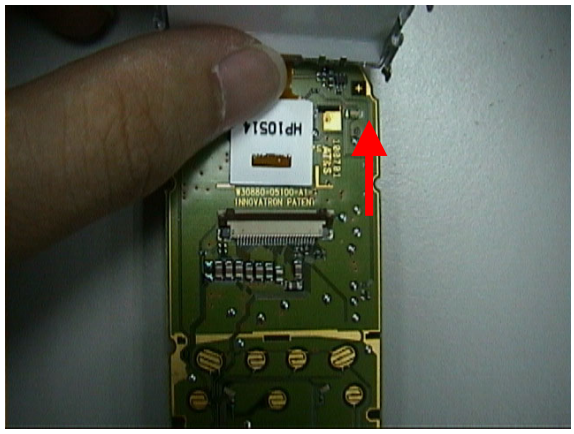


PHOTO 2.13DISASSEMBLE A50– STEP 6

Assemble the A50/1168

STEP 1:

Fit back the LCD and lock down the catch onto the PCB, place the control board on the Back Internal Housing and place the keypad on the Front Internal Housing as illustrated in PHOTO 2.14.

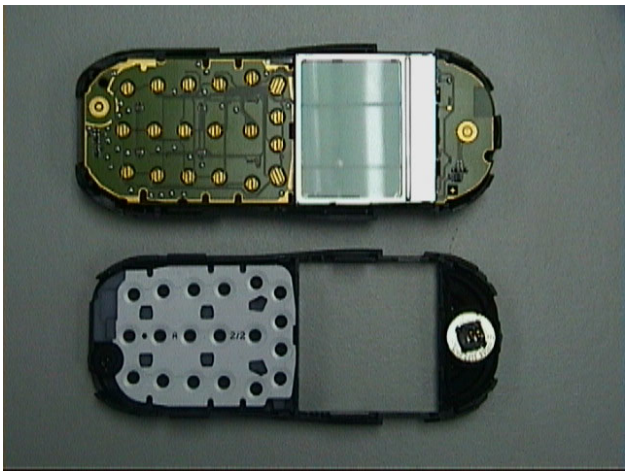


PHOTO 2.14 Assembly A50– STEP 1

STEP 2:

Place the Front and Back Internal housing and lock down all the catches by the side of the as illustrated in PHOTO 2.15

PHOTO 2.15 Assembly A50– STEP 2

STEP 3:

Place the Assemble the External Front housing by pressing it down to the Internal housing as shown in PHOTO 2.16 & 2.17

PHOTO 2.16 Assembly A50– STEP 3

PHOTO 2.17 Assembly A50– STEP 3

STEP 4:

Insert the SIM card fully into the phone as shown in the PHOTO 2.18 & 2.19

PHOTO 2.16 Assembly A50– STEP 3

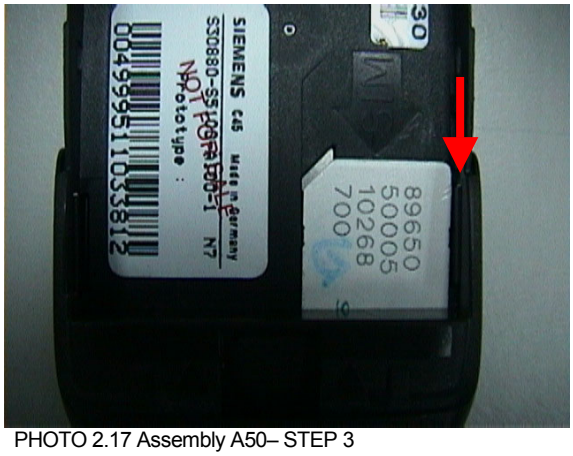


PHOTO 2.17 Assembly A50– STEP 3

STEP 5:

Slot in the battery at a 45° angle, so that the groove on the edge of the battery fits well into the guiding groove on the back housing of the phone as illustrated in PHOTO 2.18 & 2.19

PHOTO 2.18 Assembly A50– STEP 5

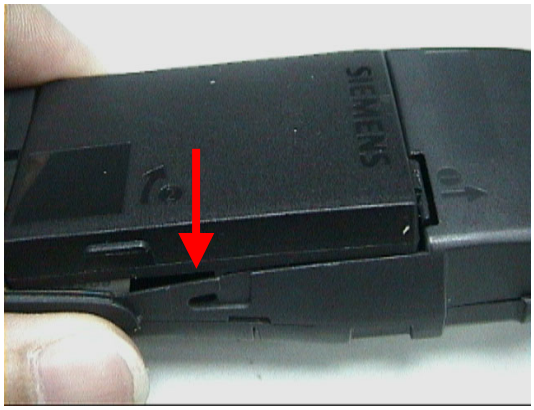


PHOTO 2.19 Assembly A50– STEP 5

STEP 6:

Slide the External Back Housing onto the phone and lock it down in place. PHOTO 2.20

PHOTO 2.20 Assembly A50– STEP 6

All contact pins must not be dirty, damaged or bent! ALL CATCHES MUST ENGAGE COMPLETELY!

If any part is not O.K please replace it with a new part.

Mobile Software Programming

Due to this separation of common mobile software and customer specific initialization, it is possible to fulfill the demands of the market requiring customization and flexibility.

As a consequence the software programming process in the LSO is divided into two different steps as followed:

1. Software update to actual version and appropriate language group
2. Programming of CUSTOMER SPECIFIC INITIALIZATION

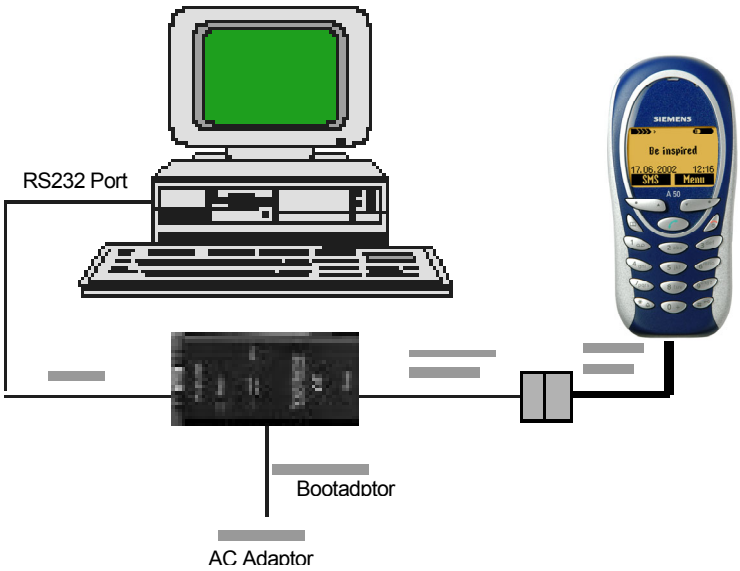


FIGURE 2.24 C45 SERIES SOFTWARE PROGRAMMING SETUP

Mobile Software Updating

The software of the mobile, A50/1168, is loaded from a PC directly. Hardware interconnection between the mobile and the PC is shown in Figure 2.24

Because of the new type of external connector used in X35 (Lumberg type) an additional adaptor cable between mobile and boot adaptor is required if the “black boot adaptor” is used. Table 2.1 listed all the hardware requirements

If you use the battery dummy, make sure that the power supply voltage is correctly adjusted.

Description	Part No.
Bootadapter 2000 incl. AC-Adapter, serial cable and mobile connection cable	L36880-N9241-A200
IBM Compatible PC – Pentium	-

TABLE 2.1 EQUIPMENT LIST FOR SOFTWARE PROGRAMMING.

Languague Groups

There are over 20 languages for the A50/1168 series in total. These languages are divided into groups as follows

Language groups K45	Languages	Tegic Languages
LG 1 International	English, German, French, Turkish, Dutch, Italian, Arab	English, German, French, Turkish, Dutch, Italian
LG 2 Nordic	English, German, Danish, Norwegian Swedish, Finnish	English, German, Danish, Norwegian, Swedish, Finnish
LG 3 Eastern Europe	English, German, Czech, Polish, Slovak, Russian, Hungarian	English, German, Czech, Polish
LG 4 Mediterranean	English, Turkish, Greek, Hebrew, Russian, Bulgarian, Arab	English, Turkish, Greek
LG 5 Iberia	English, German, French, Spanish, Portuguese, Catalan, Braz.Port	English, German, French, Spanish, Portuguese
LG 6 South East Europe	English, German, French, Italian, Slovene, Croatian	English, German, French, Italian
LG 7 South East Asia	English, German, French, Thai, Bahasa Malaysia, Bahasa Indonesian	English, German, French
LG 8 Asia	English, Simpl. Chinese, German (if enough place)	English, Simpl. Chinese, German
LG 9 Taiwan	English, Trad. Chinese, German (if enough place)	English, Trad. Chinese, German

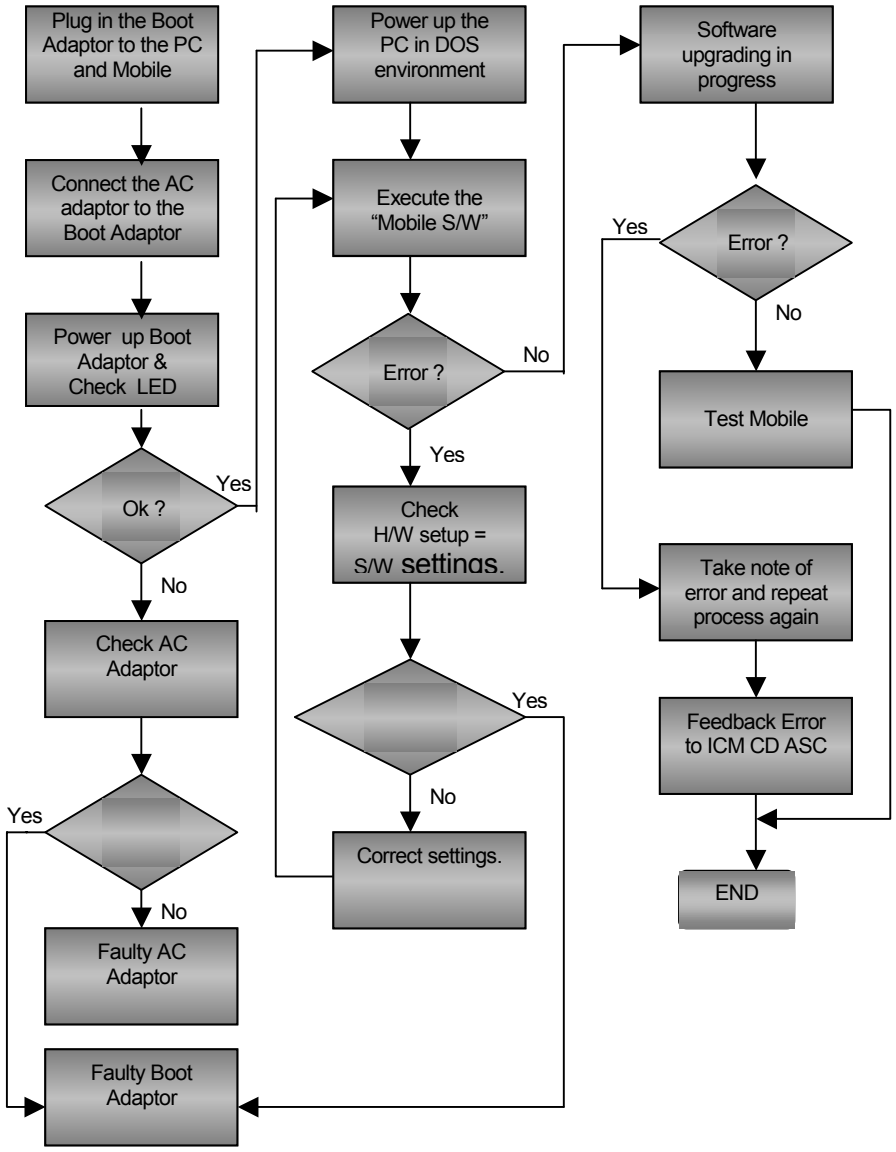
This information is subject to change!

Contact your Service Manager for the order number of the right version of mobile software for your market.

This executable file needs a definition or init file, named **SWUP.INI**, to define the message language preferences and the hardware communication port set up.
The content of this file consists of the following text:

Language=English
COM=x

Where x is the number that corresponds to the serial port that is used, either 1, 2 or 3.



FLOWCHART 2.1 SOFTWARE PROGRAMMING. PROCESS

Customer Specific Initialization

Refer to the Customization Guide

LSO has to make sure that after repair the customer gets the mobile with correct variant specific initialization.

For more information about the configuration tool, refer to Service Information dated 30th April 1999, or contact your Service Manager.

International Mobile Equipment Identity, IMEI

The mobile equipment is uniquely identified by the International Mobile Equipment Identity, IMEI, which consists of 15 digits. Type approval granted to a type of mobile is allocated 6 digits. The final assembly code is used to identify the final assembly plant and is assigned with 2 digits. 6 digits have been allocated for the equipment serial number for manufacturer and the last digit is spare.

The part number for the A50 is S30880-S5110-Axxx where the last 4 letters specify the housing and software variant.

A50 series IMEI label is accessible by removing the battery.

Re-use of IMEI label is possible by using a hair-dryer to remove the IMEI label.

On this IMEI label, Siemens has also includes the date code for production or service, which conforms to the industrial standard DIN EN 60062. The date code comprises of 2 characters: first character denotes the Year and the second character denotes the Month. Fr example, the IMEI above show date code **M3.**

Year	Date Code	Month	Date Code
1999	**L**	**December**	**D**
2000	M	January	1
2001	N	February	2

TABLE 2.3 DIN EN 60062 DATE CODE

Phone Unblocking

When the phone is disable due to wrong entry of PHONECODE, it can be re-activated by entering the right unblocking code. This unblocking code is derived from the IMEI number of the mobile.

The unblocked code, also known as Master Phone Code, has to be entered in the following format:

*** # 0 0 0 3 * - - - - - - - - #**

The Master Phone Code can be obtained by:

1. Fax to Siemens Hotline in Germany

Siemens AG

ICP CD SH

World Service Center, Bocholt, Germany

+49-2871-91-3007

2. Fax to Siemens Hotline in Singapore

Siemens Pte Ltd
ICM MP CCQ ASC/ASP

Ms Ellis Siew

Tel: +65- 6845 4817

Fax:: +65-6842 6641

3. Internet Solution

A password protected homepage where LSO can enter IMEI number of a disable phone. The generated Master Code will then be presented for unblocking purpose. This service is offered to all LSOs.

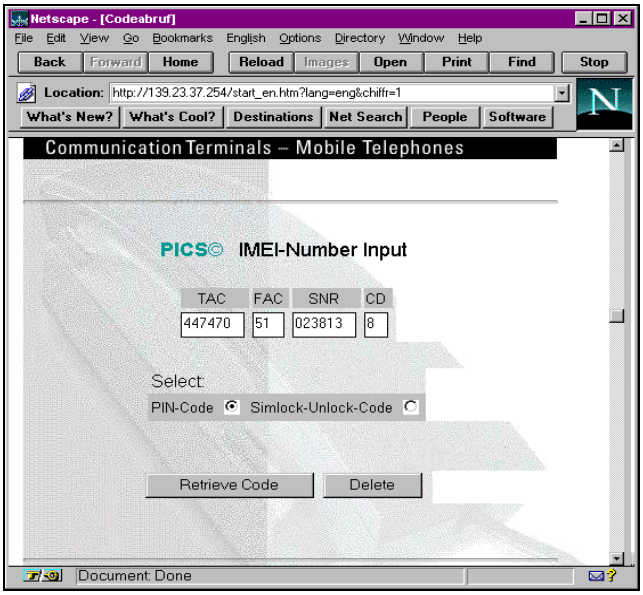


PHOTO 2.19 INTERNET PAGE

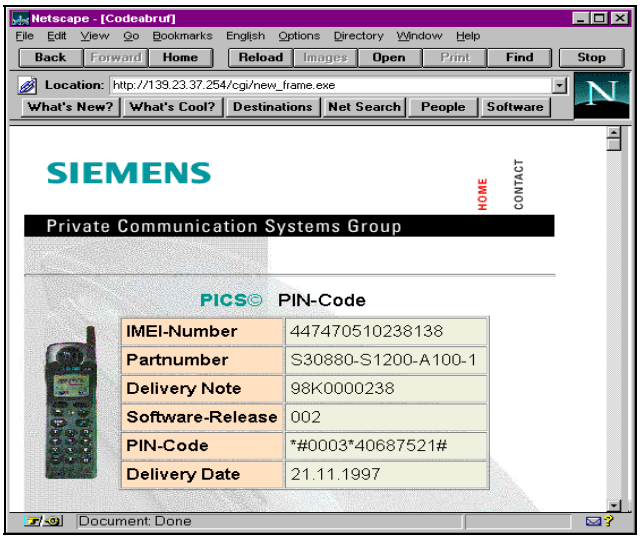


PHOTO 2.20 INTERNET PAGE: MASTER PHONE CODE

Contact your Service Manager for more information regarding setting up of the INTERNET SOLUTION & its installation procedure,

Chapter 3

Siemens Service Equipment

USER MANUAL

Introduction

Every LSO repairing Siemens handset must ensure that the quality standards are observed. Siemens has developed an automatic testing system that will perform all necessary measurements. This testing system is known as

Siemens Mobile Service Equipment

Using this system vastly simplifies the repair of the phones and will make sure that:

1. All possible faults are detected
2. Set which pass the test will be good enough to return to customer.

Starting from the P35 Series, Siemens will introduce a simpler and faster testing platform for testing a repaired Siemens mobile phone. The testing platform are either base on R&S CMD 53/55, CMU200; CTS55 GSM test set.

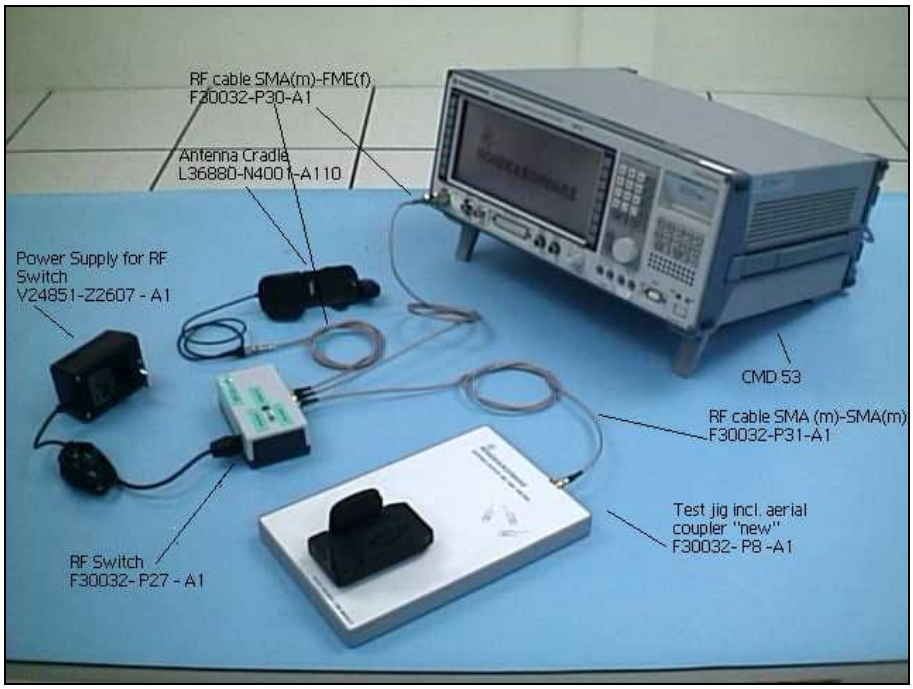
There is also test software available for testing with the Wavetek 4201S, 4400 and the 4107 GSM test set.

THE LSO WILL HAVE TO PURCHASE THE SYSTEM, CHOOSING BETWEEN THE COMPLETE PACKAGE OR SUB-SET OF IT.

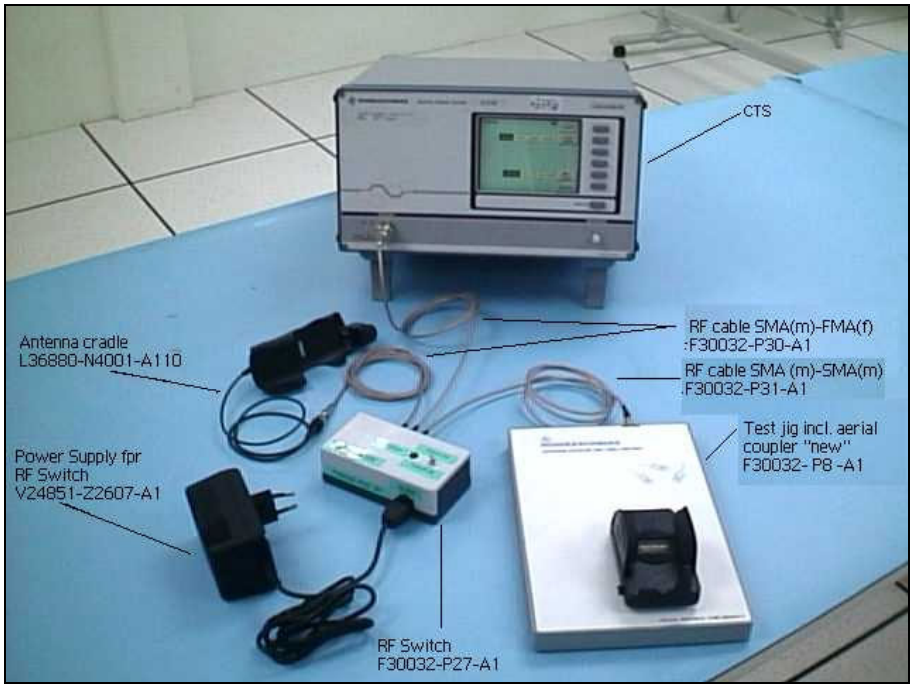
A FULLY AUTOMATIC TEST PROCEDURE IS ONLY POSSIBLE IF THE COMPLETE SYSTEM IS INSTALLED.

Make sure that your CTS firmware is Version 3.01 or higher. For CMD it must be Version 4.03 and higher. Please check with the Service Info SB_0500 for the CTS/CMD Hardware Options.

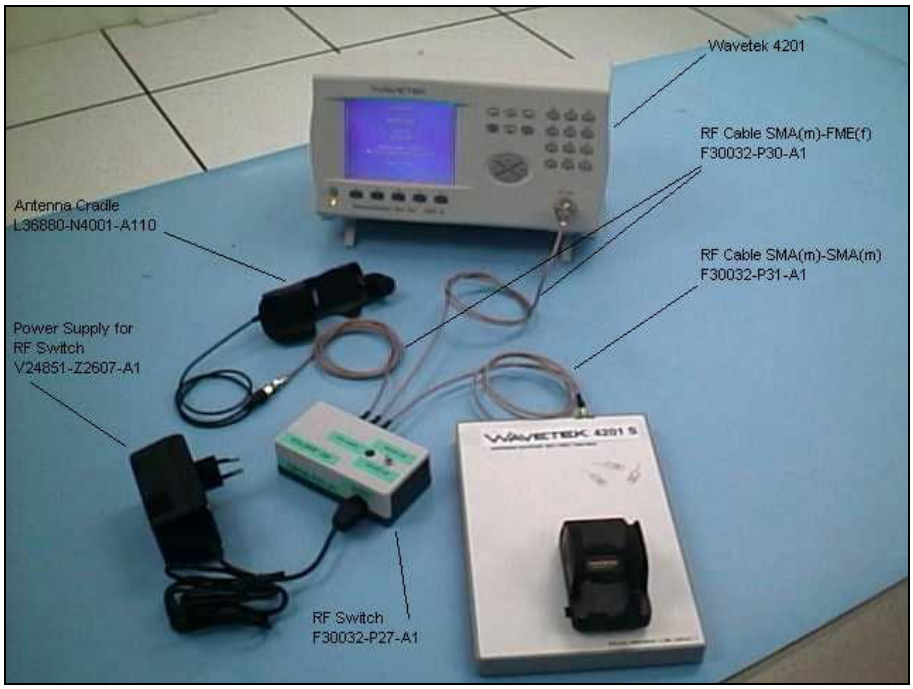
R&S CMD55 Test Station



R&S CTS55 Test Station



Wavetek 4201S / 4400 Test Station



Other equipment

One PC Windows NT 4 with a serial port to connect to the GSM test set through the PC serial cable provided for the GSM test set.

One Test SIM card and a fully charged battery for used with the mobile phone model.

Additional RF connector will be needed for setup using Wavetek 4107 test set and Wavetek Antenna Coupler.

For LSO Test Station setup base on the Wavetek 4107 test set, you need a TNC(male) to SMA(female) connector. For the Wavetek Antenna Coupler, you need a TNC(female) to SMA(female) connector. The part number for the connectors will be announced soon.

For Wavetek GSM test set

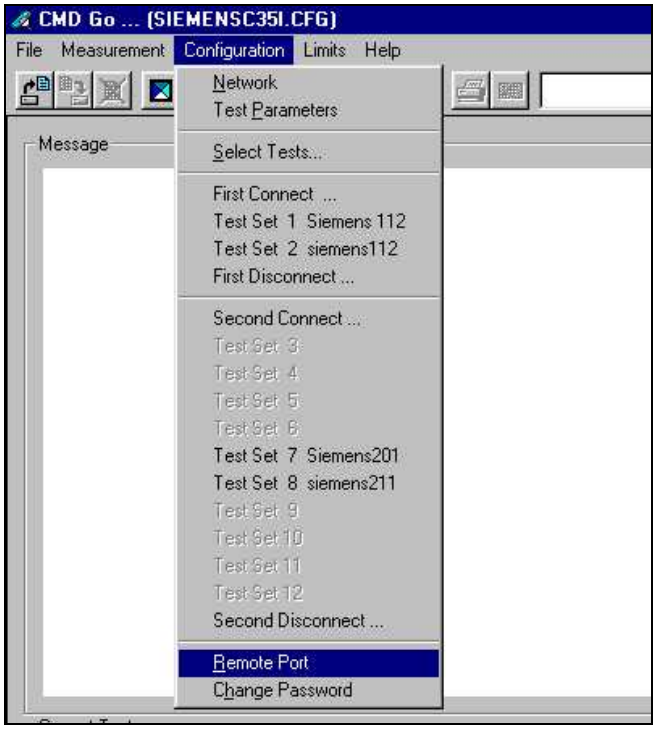
For Wavetek Antenna Coupler

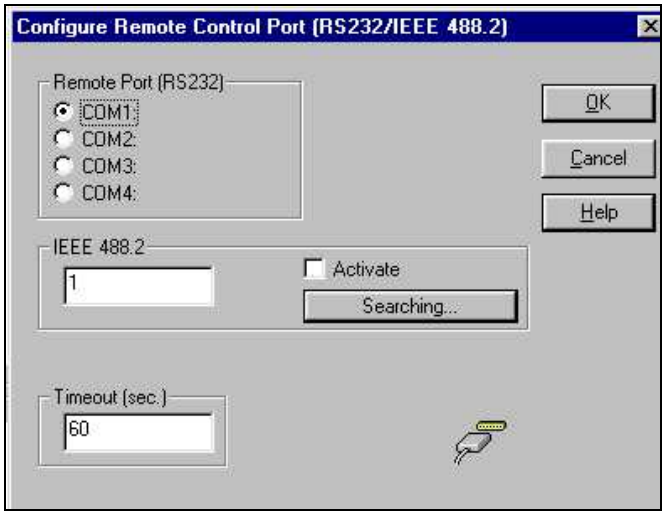
Software Installation

Before executing the test software, it is important to ensure that the software configuration matches that of the hardware set up. Each GSM Tester will have a specific test software. The test software are name CMD_GO, CTS_GO; CMU_GO and for Wavetek test set, CAT4200/4400 respectively.

First, copy the installation software for the specific GSM tester to a temporary directory on the harddisk of the Window PC and then Run the Setup from the first sub directory – Disk1 for CMD_GO test software.

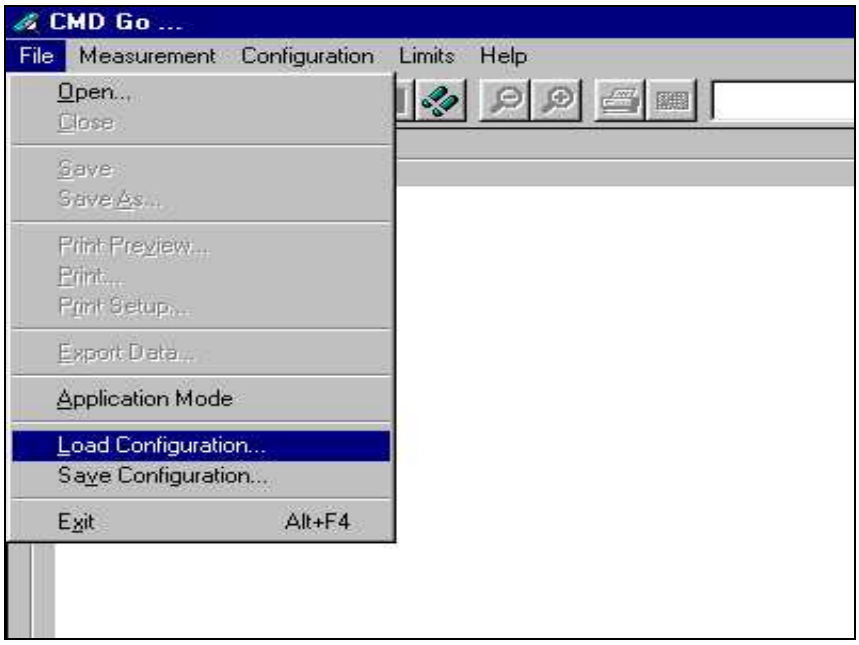
After the installation for the test software, RUN the Test software and check the configuration setting for the Serial port.

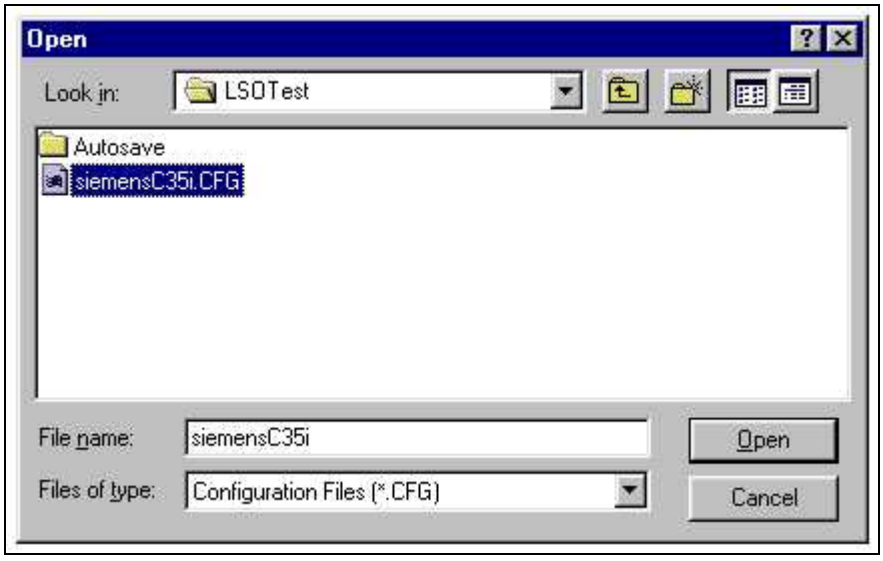




Configuring the test software

For each model of the P35 series mobile phone, Siemens will distribute the testing configuration file for the specific test station. For testing the phone, just go to the File menu and select Load Configuration.



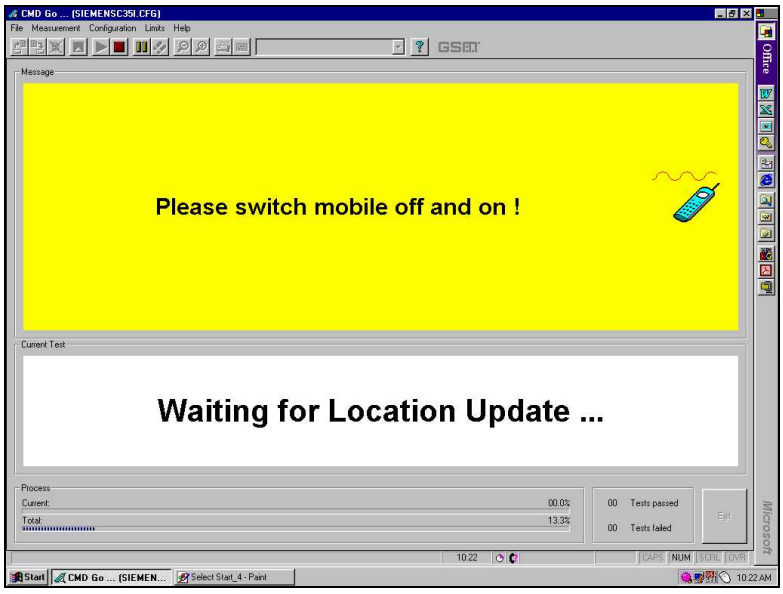


Running the test sequence

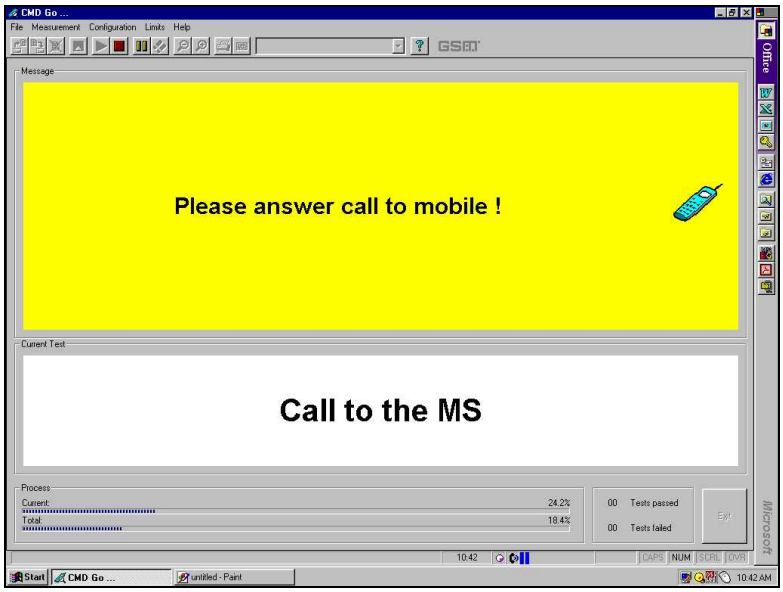
Make sure that your CTS firmware is Version 3.01 or higher. For CMD 55 it must be Version 4.03 and higher. Please check with the Service Info SB_0500 for the CTS/CMD Hardware Options.

Insert a Test SIM card and a fully charged battery into the Siemens mobile phone and place it onto the phone holder on the Antenna Coupler. Switch the RF switch to INT ANT position and select the Start button to run the test sequence in the configuration file.

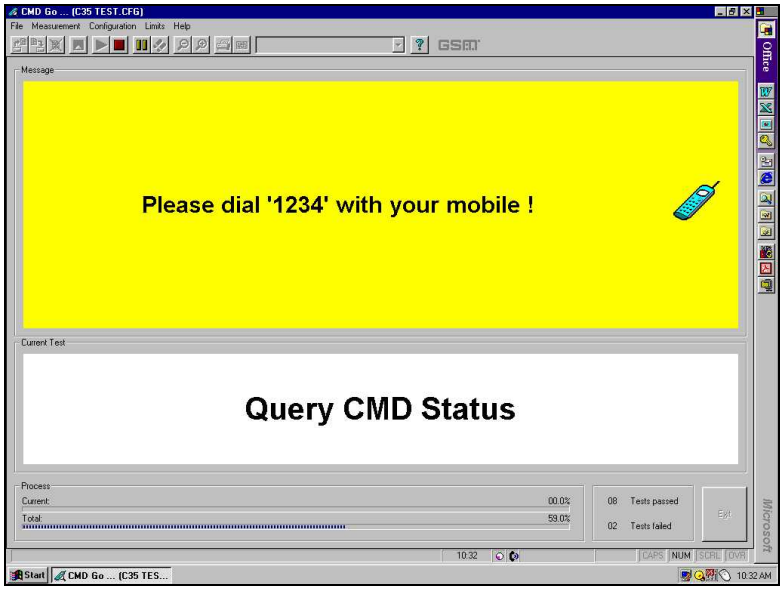
Follow the instruction on the screen and switch on the phone. The mobile phone will start Network Search and doing Location Update to the GSM test set through the off-air signal from Antenna Coupler.



Next, the GSM test set will initial a call to the mobile phone through the Antenna Coupler. Press the Call key when the mobile phone ring, and the GSM test set will start Tx Power measurements on the GSM and GSM1800 channel specified by the configuration setting.

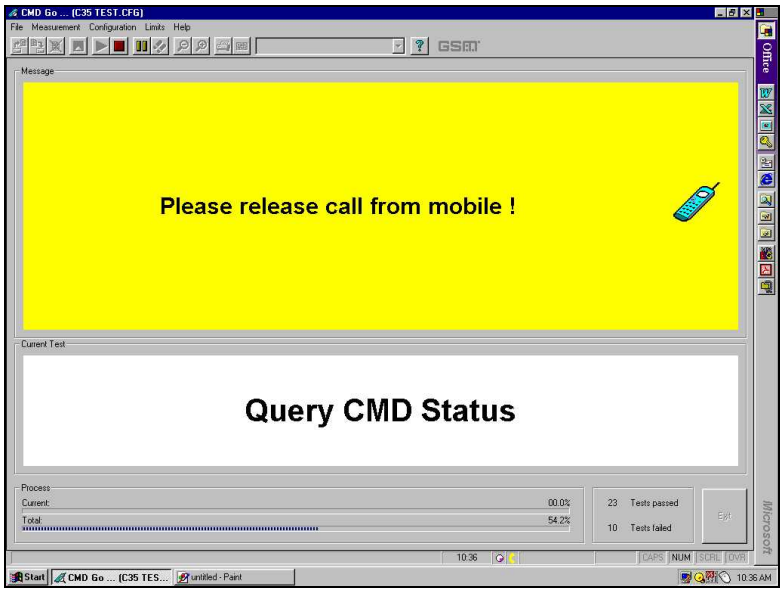


Next, the GSM test set will end the call to the mobile phone and the screen will prompt for Dialing from the mobile phone. At this test step, please move the mobile phone to the Antenna Cradle and switch the RF switch to EXT ANT position. Once the mobile phone log to the GSM test set, dial 1234 and the Send key.

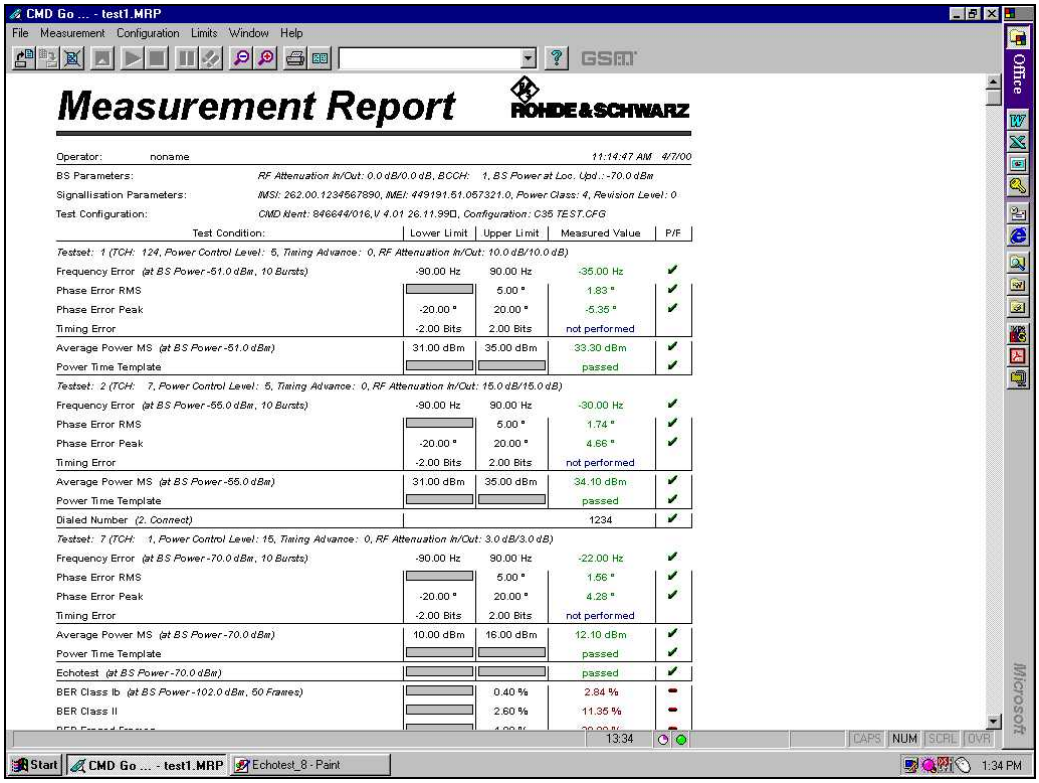


The GSM test set will make Tx Power measurements, Rx BER measurement, Echo Loop test on the GSM and GSM1800 channel specified by the configuration setting. There will be a Echo Loop Back test for checking the speech quality. Speak into the mobile phone when prompted and listen the voice after appr. 1 second and check the speech quality. If not O.K, it may be microphone or the earphone defective.

The last test is Disconnect Call from the mobile phone. Press the End Call key and the test sequence will end.



A measurement report screen will show up and a hardcopy can be printed if a printer is connected to the PC. To close the measurement report screen, click the third button from the left.



Once the mobile phone pass all the test steps, please make a check for all the key and the display. After this we can confirm on the proper functioning of the mobile phone after repair and return the phone back to the customer.

ANNEX A

Test SIM card Information

For testing purposes, in combination with the Rohde & Schwarz GSM tester, CMD or CTS, it is mandatory to use the enclosed test SIM card.

If you do not use this test SIM card, you will encounter difficulties in getting correct measurement for the Bit Error Rate.

When the SIM card simulation is set to '1' in the INI file, then this test SIM card is not needed at all

There are two different PIN numbers stored in the SIM card. The PINs and their respective Master-PIN are:

PIN 1	12 34
Master-PIN 1	76 54 32 10
PIN 2	56 78
Master-PIN 2	98 76 54 32

TABLE A.7 D25 TO D25 CONNECTION

ANNEX B

Service Equipment List

All purchases of jigs, tools and test equipment must be order directly from Siemens Germany. Attach the standard form with your purchase order and send it to ICM MP SL and ICM MP CCQ ASC/ASP.

For detail information, contact your Service Manager,

or download the valid from the internet "technical support"

Disclaimer: This content is subjected to change without notice.

ICM MP CCQ ASC/ASP,
164, Kallang Way, #04-22, Kolam Ayer Industrial Estate, Singapore 349248
Author: Lee Kian Meng.
Phone +65-68454806 • Fax +65-68426641
First Print: Sep, 02
Revised Print: N.A.
Date Print: 18 Sep 2002